Iowa Science Teachers Journal

Volume 19 | Number 2 Article 15

1982

Diatoms (Part III): Slide Making

James Hungerford
Marshalltown Community High School

DIATOMS (PART III): SLIDE MAKING

James Hungerford
Marshalltown Community High School
Marshalltown, Iowa 50158

The previous articles in this series (Vol. 15(3); 1978) (Vol. 16(3); 1979) discussed the collection, preparation and preservation of diatoms for laboratory analysis. This article outlines the technique for mounting diatoms on slides for microscopic examination.

Slide Making

1. Place a 22 × 22 mm #1 coverslip on an aluminum sheet and warm on electric hotplate.
2. Etch a clean microscope slide with a diamond marking pencil and use a code to assist in identifying the collected material to be studied.
3. From previously collected and processed material, agitate the diatoms until they are uniformly suspended in solution.
4. With a medicine dropper, remove a small sample from the suspension and transfer to the previously warmed coverslip, one drop at a time, until the coverslip is completely covered, but not overflowing.
5. Slowly increase the temperature of the hotplate until all liquids have evaporated. Coverslips that are dried too fast will cause rings of diatoms to form on the coverslip rather than being uniformly distributed.
6. Allow the coverslip to cool and invert the coverslip with a tweezers on a drop of Hyrax mounting medium positioned on the center of a glass microscope slide. Slowly heat the slide until the solvents evaporate. Allow the slide to cool and seat the coverslip on the slide by gently pressing with a toothpick.

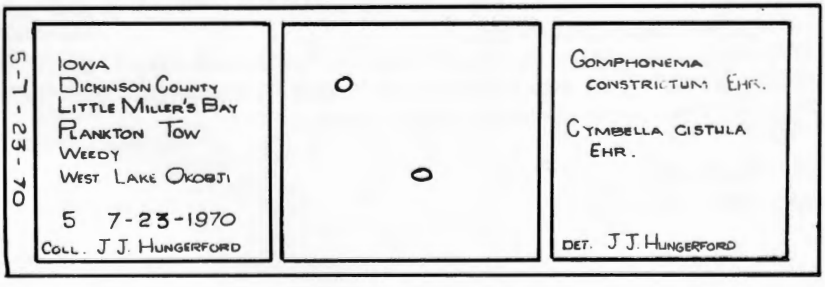

Fig. 1. Slide preparation for diatoms.

7. Examine the slide beneath a microscope. (Diatoms are usually studied under 970X magnification.) If the sample population is too dense, dilute your specimen material with distilled water before making additional slides.
8. Place a label on each end of the glass slide as outlined in (Fig. 1). The left-hand label should include collection data such as state, county, locality or legal description, habitat, sample number, date and name of collector. The right-hand label is used for identification information.
9. Usually not more than three specimens are identified per slide. Select some specimens to be named on the right-hand label and circle their location on the coverslip.

You are now ready to make determinations; the next article will deal with this topic.

***

Mercury

Teachers and students who are involved in activities involving liquid mercury should be aware of potential poisoning resulting from handling mercury or inhaling mercury vapors. All personnel should develop procedures for the safe storage and handling of mercury. Spilled mercury should be recovered immediately as it tends to flow into hidden cracks and crevices and slowly vaporize. Mercury should not be removed with a standard vacuum cleaner since the vacuum cleaner tends to spray mercury into the air.

Small amounts of mercury in visible droplet form, or pools, can be picked up with a medicine dropper.

Another procedure in the event of a mercury spill requires the following steps:

1. Moisten 20 mesh zinc with 0.1 N hydrochloric acid.
2. Allow the moistened zinc to stand for 10 to 15 minutes.
3. Pour the "activated zinc" on and around the mercury spill and leave it for a little while.

The spilled mercury combines with the "activated zinc," making it possible to sweep up with a little or no danger. A commercial powder is available from some chemical supply houses.

DTS Newsletter
Feb. 1982